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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,013	10/21/2005	Qin Zhao	FR030043	9938

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EXAMINER	
AMIN, JWALANT B	

ART UNIT	PAPER NUMBER
2628	

MAIL DATE	DELIVERY MODE
09/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,013	ZHAO ET AL.	
	Examiner	Art Unit	
	Jwalant Amin	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-7* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimori (US 5014223), and further in view of Bresenham ("Algorithm for Computer Control of a Digital Plotter").

3. Regarding claims 1, 6 and 7, Tanimori teaches a method of filling in a parallelogram comprising a first vertex, a second vertex, a third vertex, and a fourth vertex (figs. 35 and 36 illustrates generating filling vector for parallelorgram TSQR), said method comprising an iterative step of calculating the coordinates of the points on a segment parallel (segment QR is considered to be parallel to segment TS) to the first segment (TS is considered to be the first segment) and included within the parallelogram (the process generates filling vectors parallel to the segment TS as depicted in figure 36, and therefore this process is considered to be iterative; segment qr as shown in figure 35 is considered to be parallel to segment TS) (figs. 35 and 36, col. 13 lines 4-43).

Although Tanimori teaches the limitations as stated above, Tanimori does not explicitly teach to calculate the coordinates of the points on the first segment between the first and second vertex, the coordinates of the points on the second segment

between the first and third vertex, the coordinates of the points on third segment between the second and fourth vertex, and the coordinates of points on a segment parallel to the first segment and included within the parallelogram. However, Bresenham (pages 25-26, fig. 3) teaches to calculate and select the mesh points nearest the desired line segment as shown in fig. 3 (the mesh points included in the path taken by the plotter to draw the line segment between the points D1 and D2 corresponds to coordinates of points on the line segment; it should be noted that Tanimori teaches to iterate the process, and therefore by iterating this process the coordinates of points on all the desired line segments can be calculated). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to compute and plot the mesh points on the line segment connecting two points as taught by Bresenham and apply it to the method of Tanimori because the plotter according to Bresenham's algorithm is capable of executing any one of the eight linear movements and linearly move from a point on a mesh to any adjacent point on the mesh (pg. 25 paragraph two).

4. Regarding claim 2, Tanimori teaches a segment parallel to the first segment of the parallelogram (segment qr is parallel to the segment TS of parallelogram TSQR). Tanimori further teaches to generate filling vectors for the parallelogram as shown in fig. 36 (figs. 35 and 36, col. 13 lines 4-43; figure 36 shows different points on segment TQ and segment SR of the parallelogram that are at the same distance from the vertex T and S of the parallelogram). Please refer to the rejection of claim 1 for details regarding calculating coordinates of points on a segment lying between two points.

5. Regarding claim 3, Tanimori teaches the limitations as stated above, except that Tanimori does not explicitly teach translating the first segment in a horizontal or vertical favored direction, intended to supply a translated segment included in the parallelogram. However, Bresenham teaches to translate the origin of line segment D_1D_2 as shown in figure 4 (pg. 26; the point D_1 is translated to the origin; this translation or shifting of the point occurs in both horizontal and vertical directions). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to translate point D_1 to the origin as taught by Bresenham and apply it into the method of Tanimori because by translation of the origin to point D_1, point D_2 lies in the first octant, and the plotter movement can be accomplished by a sequence of moves involving only M_1 and M_2 (pg. 26).

Although the combination of Tanimori and Bresenham teach the limitations as stated above, they do not teach a test substep intended to test weather a point P on the translated segment is included in the parallelogram. However, the examiner takes an official notice of the fact that it was known to one or ordinary skill in art at the time of present invention to determine if a point is inside or outside of the parallelogram based on the coordinates of the four vertices of the parallelogram and the concerned point because determining the position of the point relative to the vertices of the parallelogram reduces further computation and processing.

Regarding claim 5, Tanimori teaches the limitations as stated above, except that Tanimori does not explicitly teach calculating coordinates of the points on a segment use a mid-point algorithm. However, Bresenham teaches exactly the same

(Bresenham's algorithm to find and plot the mesh points nearest to the line segment is also known as mid-point algorithm). Therefore, it would have been obvious to one of ordinary skill in art at the time of present invention to apply Bresenham's algorithm and use it into the method of Tanimori because the plotter according to Bresenham's algorithm is capable of executing any one of the eight linear movements and linearly move from a point on a mesh to any adjacent point on the mesh (pg. 25 paragraph two).

Allowable Subject Matter

6. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to show, either individually or in combination, a substep of calculating the coordinates of a projection (E) of the third vertex (C) on an extension of the first segment (AB) and parallel to the favored direction.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jwalant Amin whose telephone number is 571-272-2455. The examiner can normally be reached on 9:30 a.m. - 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on 571-272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.A. 9/13/07

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
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